

1 ABSTRACT OF THE DISCLOSURE

2 For detecting three-dimensional shapes of an elongated flexible
3 body, a sensor cable to be placed in a passage or channel which is
4 formed axially and coextensively within the elongated flexible body.
5 The sensor cable has two pairs of fiber Bragg grating strands within a
6 tubular carrier casing. A signal light beam containing Bragg
7 wavelength bands is projected from a light source to input same to
8 refractive index change portions in the fiber Bragg grating strands.
9 Reflection diffraction light signals from the refractive index change
10 portions are received by a signal processor to measure the degree of
11 strain at each one of the respective refractive index change portions by
12 comparing wavelengths of the reflection diffraction light signals with
13 reference wavelength.